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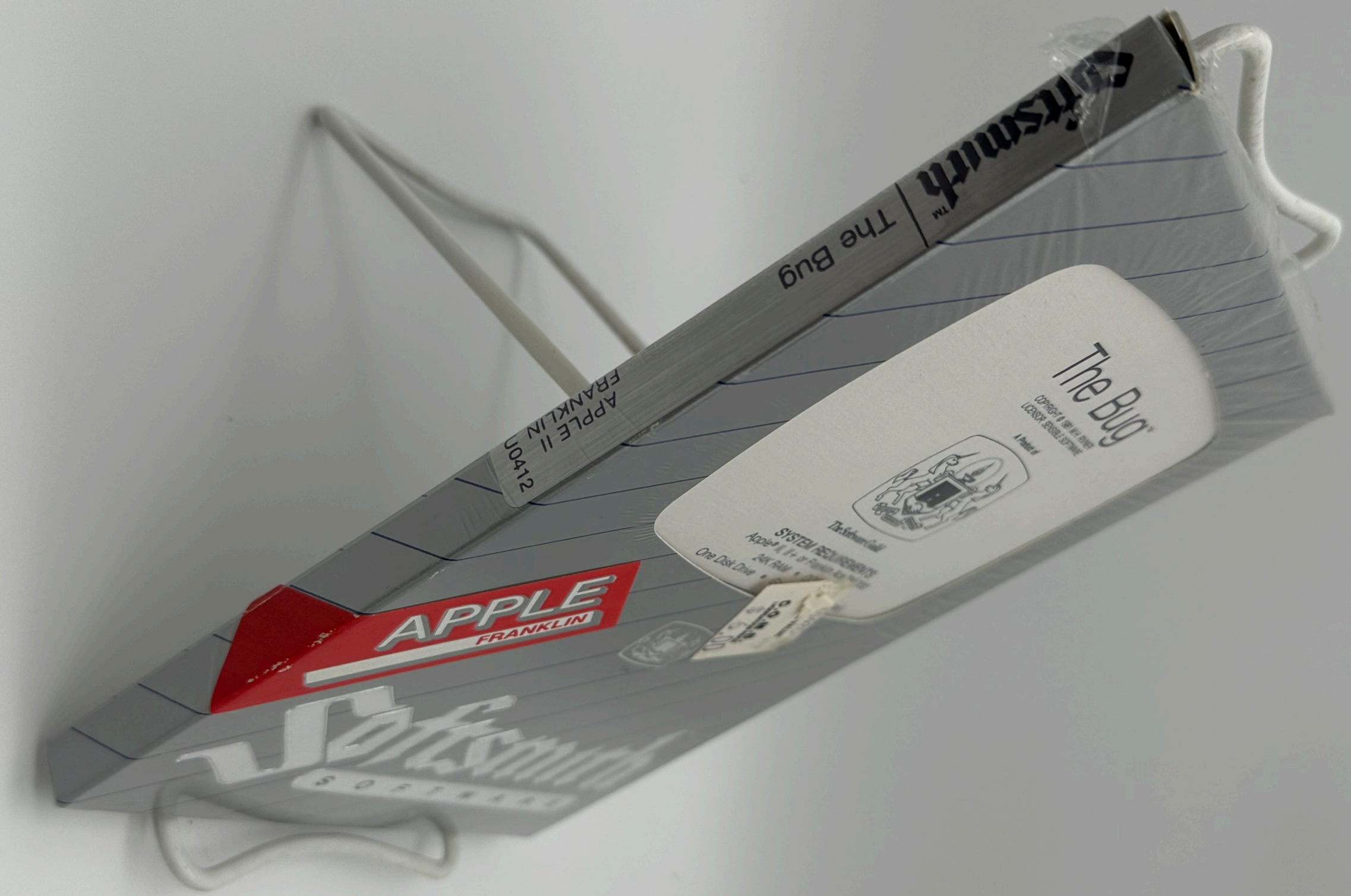
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Swat! Kill pesky Assembly Language bugs dead! Works better than a rolled up printout! The Bug is specially formulated to be safe and effective for use on any microcomputer program. It is a control program that displays the source code of each instruction as it is executed, as well as the contents of registers and memory. Execution can be commenced from any point, run fast through portions known to be bug free, and slowed to step-by-step at trouble spots. The run can be automatically halted at points of interest; commands, registers, and data can be changed, and the run continued. The modified program can be stored to disk. At last, a miracle product that lets you walk through a program until you step on The Bug!

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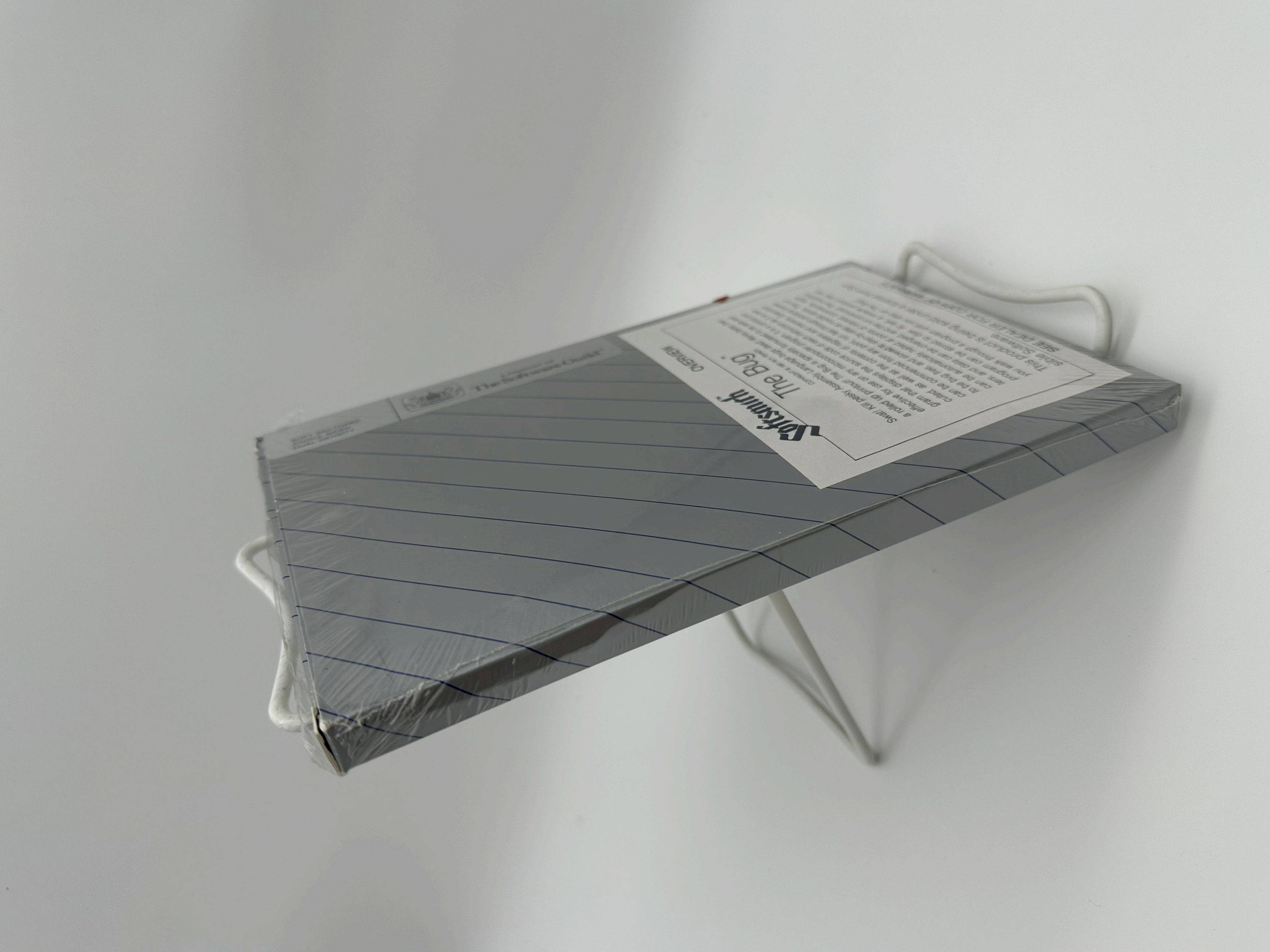
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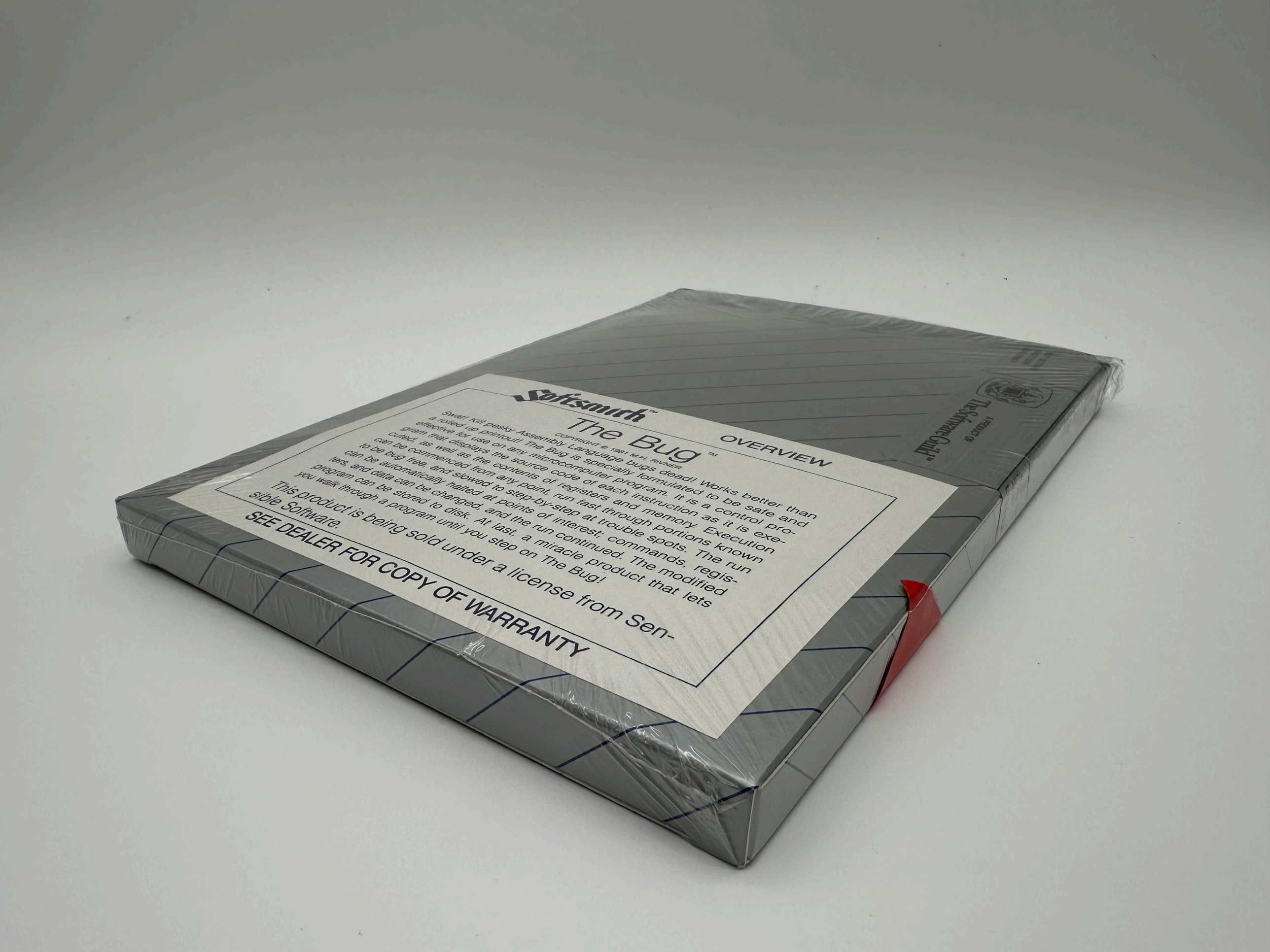
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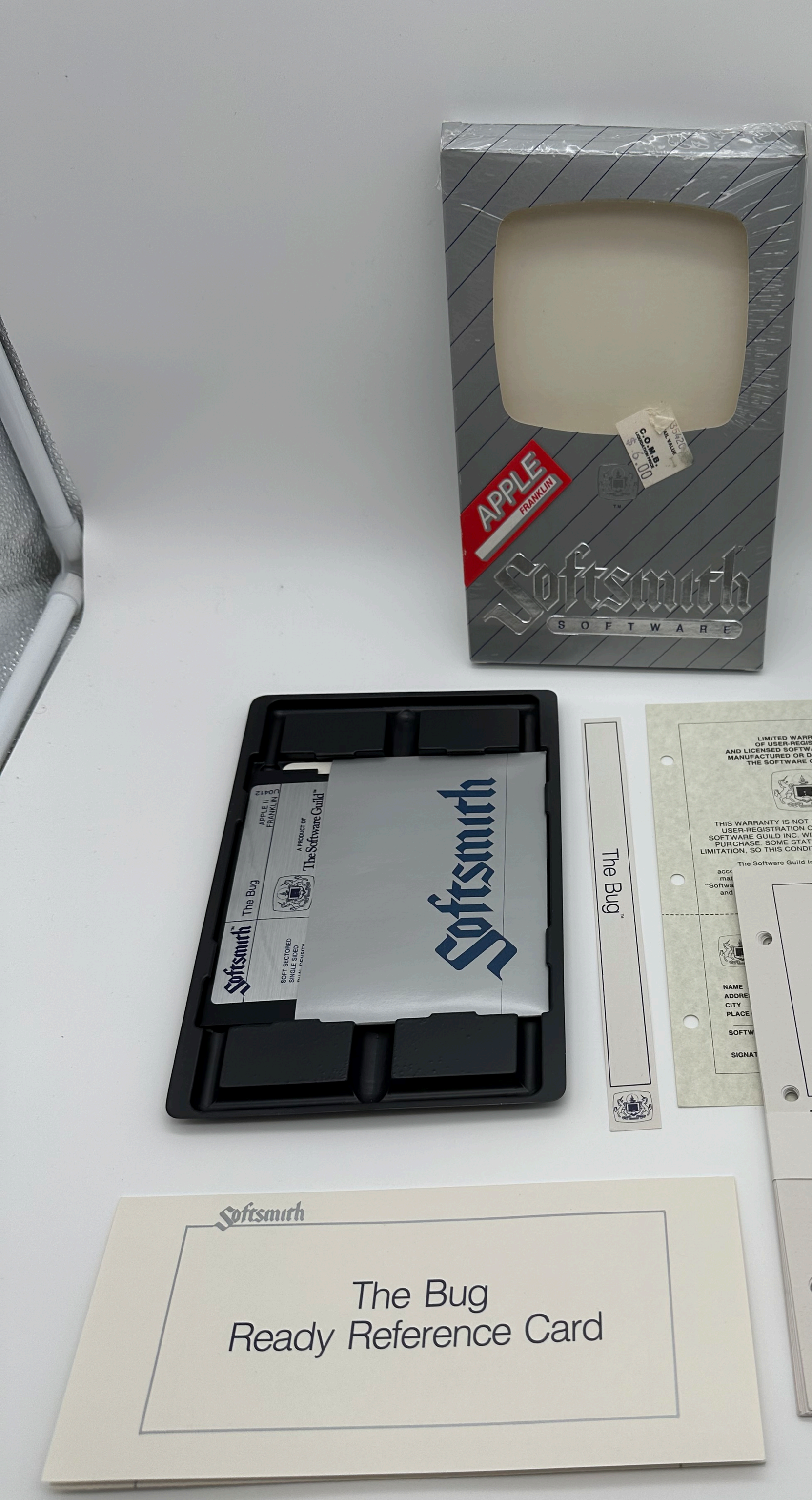
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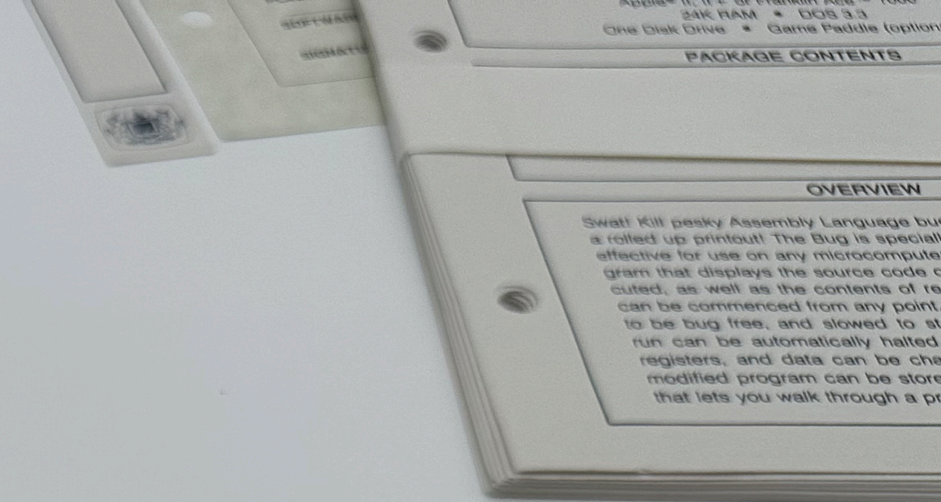


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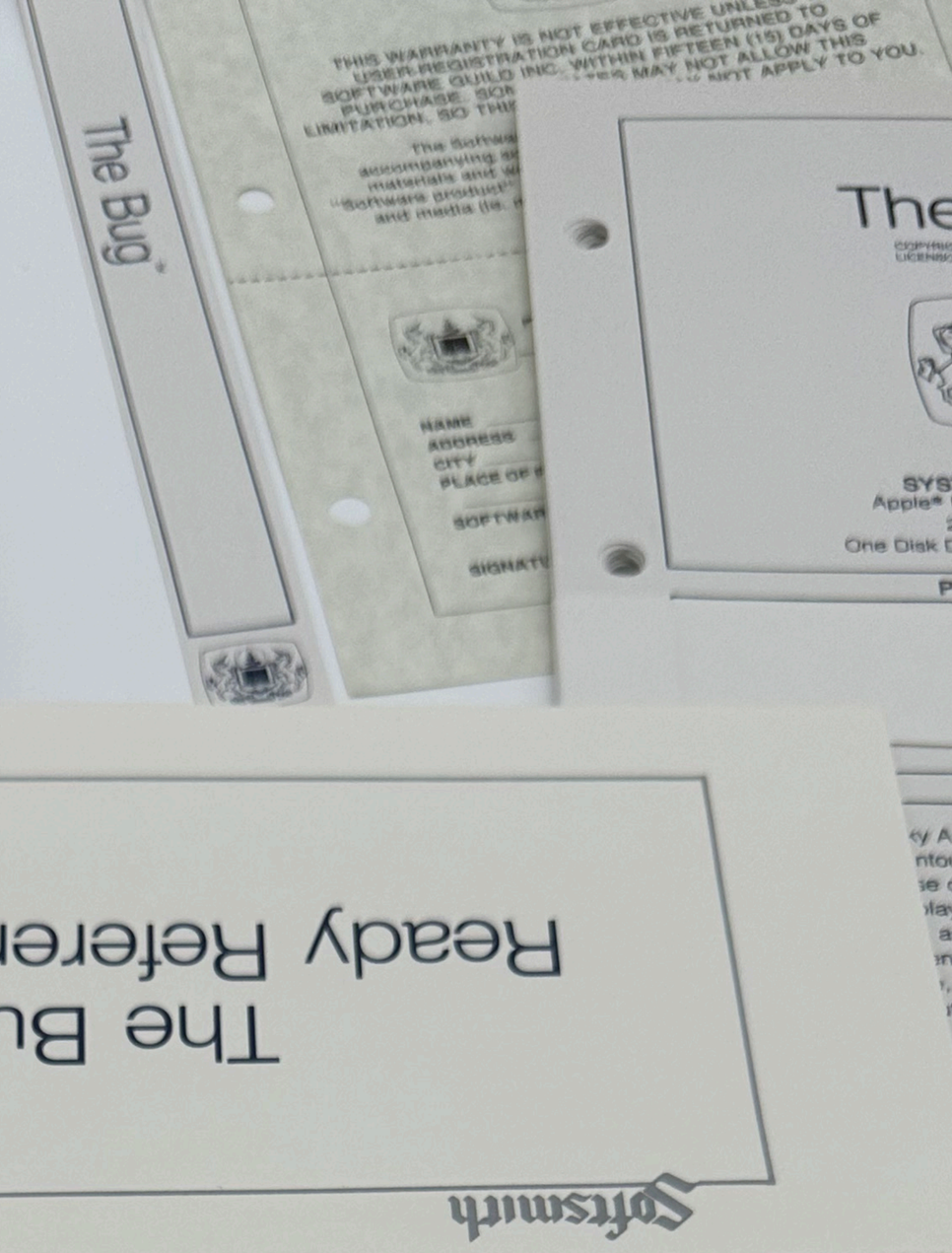


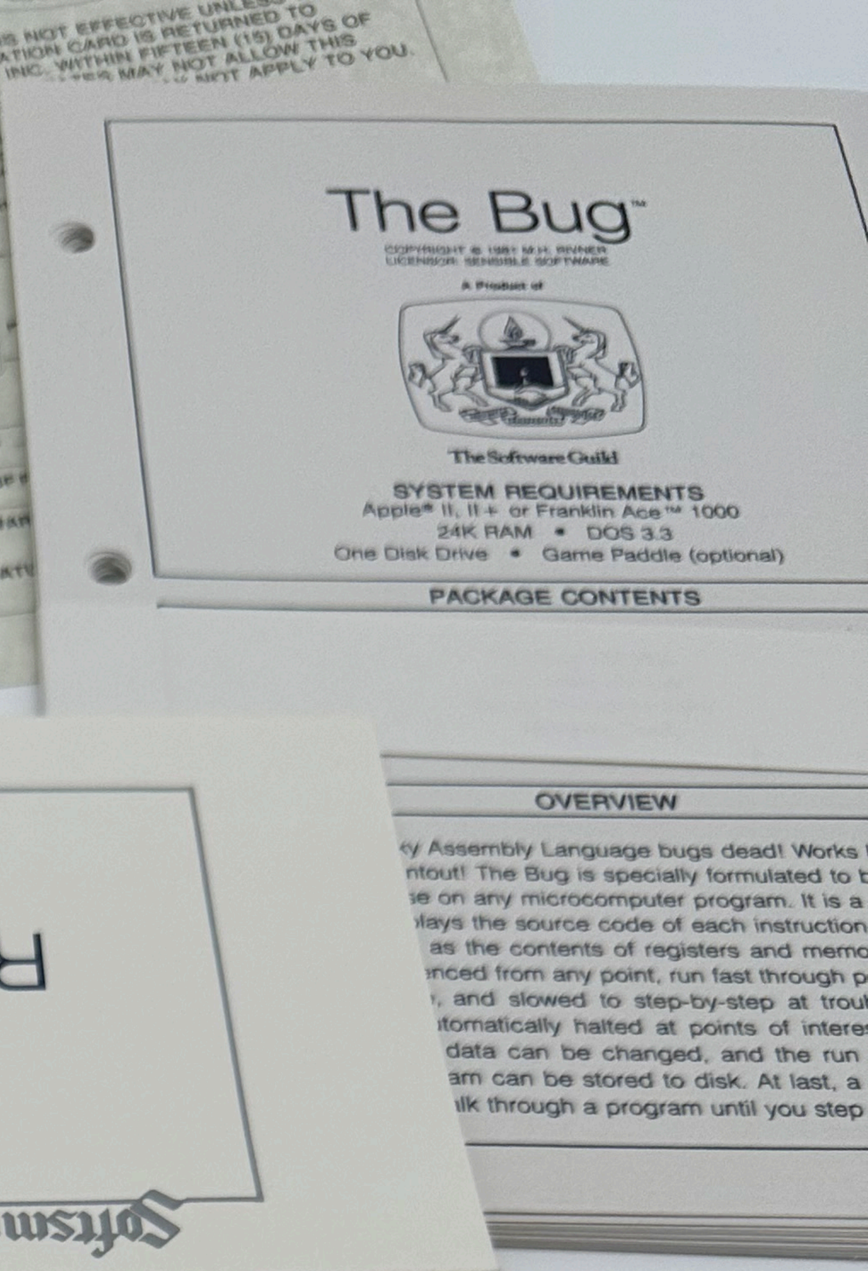
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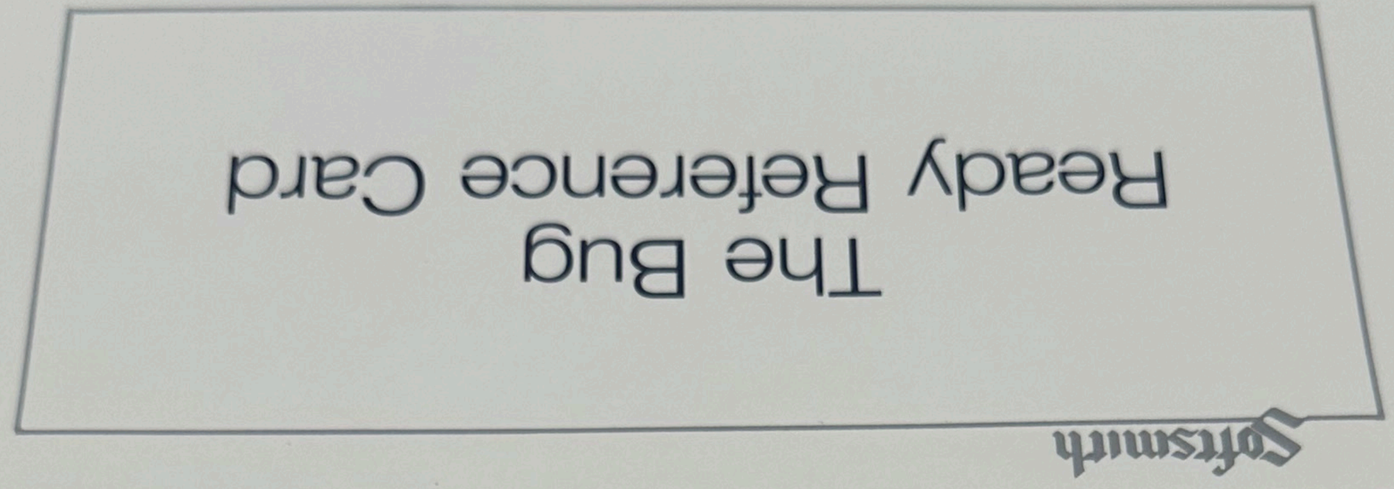


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# Quick Start Procedure

If you just can't wait to start debugging those programs and don't feel that you need to read the entire manual right away, follow the procedure below.

**Step 1** Boot The Bug program disk.

**Step 2** When asked for a page boundary, enter LX. The Bug will be loaded onto your language card. If you do not have a language card, press <RETURN>.

If you have a game paddle attached, the prompt GAME PADDLE? asks whether you wish to use it for controlling the rate of disassembly. Answer <Y>.

Another prompt will ask whether you wish to load a sample (demo) program. Answer <N>.

**Step 3** Load your program as you would normally. To do so, press <E> to exit The Bug and get into BASIC. Then, BLOAD your program.

**Step 4** Re-enter The Bug from BASIC with CALL 1013.

**Step 5** Enter <Q> to activate the disassembly display.

**Step 6** Press <G>. Type in the first address to be executed by your program, followed by <:> <1>. This sets the program counter and executes one instruction. For example, you might enter GB000:1.

**Step 7** Press <G> to begin program execution, <S> to execute a single instruction, or <ESC> to halt execution.

**Step 8** Use the Ready Reference Card instructions to operate The Bug. If all else fails, try reading the instruction manual.

# Summary of Commands

The list below presents the format of each command alongside a statement of its function. Please read the manual for a full explanation of each command and how it is used. Many commands have provisions for operands. These operands are indicated by the description inside the parenthese. Refer to the key at the bottom of the page for a further explanation of the operands. If you wish to enter more then one command on a line, please read Section Four, Entering Multiple Commands, in The Bug manual.

## EXECUTION COMMANDS

| Command | Mnemonic | Description |
|---|---|---|
| G (opt add) : (opt cnt) | Go | Standard execution, set P.C. |
| F (add) : (opt cnt) | Fast | Begin full speed execution |
| S: (opt cnt) | Step | Begin step by step execution |
| ESC | Escape | Interrupt execution |

## SPEED CONTROL COMMANDS

| Command | Mnemonic | Description |
|---|---|---|
| J: (val) | JSR | Conditional fast execution |
| Q | | Controlled display |
| I | Instruct | Instructional display |
| N | Non-Ins | No instruction displayed |
| B | Breakpt | Set a memory loc. breakpoint |
| T (reg) (symbol) (val) | Test | Set the register test breakpoint |
| TP (flag/val list) | Tst Pstn | Status reg position, part of T |

## DISPLAY COMMANDS

| Command | Mnemonic | Description |
|---|---|---|
| W | When | Display breakpoints |
| D | Display | Display contents of registers |
| P (opt add) | Part | Display eight memory locations |
| Z (opt add) | Zone | Extended memory dump |
| L (opt add) | List | List disassembly |
| C | Copy | Print hard copy of displays |
| CTRL-T | Text | Screen in text mode |
| CTRL-G | Graphic | Screen in graphic mode |
| CTRL-F | First | Screen in primary page |
| CTRL-S | Second | Screen in secondary page |
| CTRL-N | Normal | Screen in primary page, text |
| & | | Display $3C-$3D |
| & P | | Display $3E-$45 |

## MODIFICATION COMMANDS

| Command | Mnemonic | Description |
|---|---|---|
| ! | | Reset stack pointer |
| R (reg) : (val list) | Register | Modify register value |
| @ (opt add) : (val List) | At loc | Modify memory at an address |
| CTRL-W | Write | Write enable for language card |
| CTRL-P | Protect | Write protect language card |
| CTRL-K | Check | Checksum against The Bug |

## EXIT OR RESTART

| Command | Mnemonic | Description |
|---|---|---|
| E | Exit | Exit to BASIC or DOS |
| M | Monitor | Access monitor |
| CTRL-D (instruction) | DOS | Enter a DOS instruction |
| RESET | Reset | Access coldstart routine |
| & | | Warmstart from Applesoft |
| Call 1013 | | Warmstart from BASIC |
| CTRL-Y | | Warmstart from monitor |
| CTRL-Q | Quit | Quit The Bug |

# Explanation Of Table Abbreviations

| | |
|---|---|
| (add) | A hexadecimal address between $0-$FFFF |
| (opt add) | An optional hexadecimal address between $0-$FFFF |
| (val list) | A list of hexadecimal values between $0-$FFFF Each must be separated by a space or a comma |
| (reg) | A letter A, X, Y, S, or P designating a register |
| (#) | A number between one and eight |
| (symbol) | One of the symbols >, = or < a combination |
| (flag/val list) | One or more of the flags Z, V, C, D, I, B, or N each accompanied by a value of either 1 or 0, and each such pair separated from the next by a comma |
| (opt cnt) | A hexadecimal value between $1-$FF |
| (val) | A hexadecimal number between $0-$FF |

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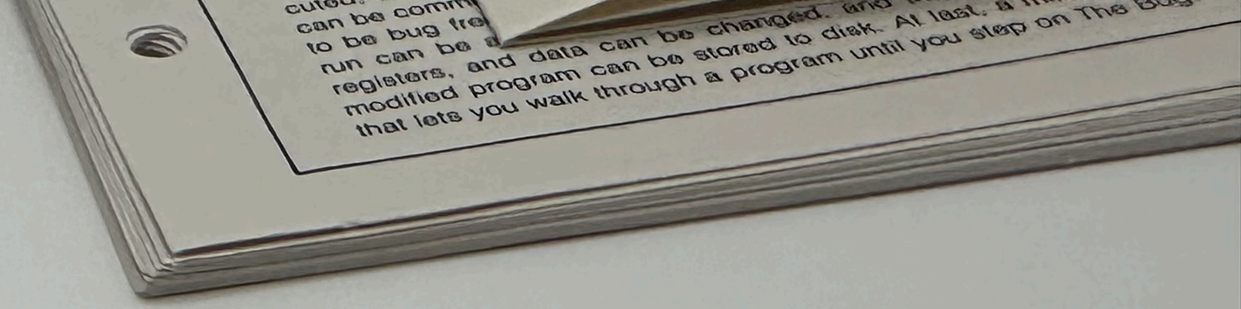
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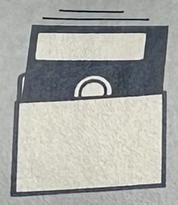

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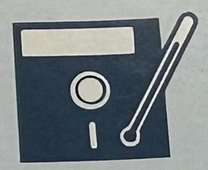

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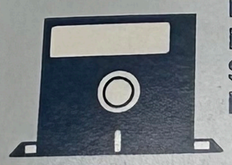

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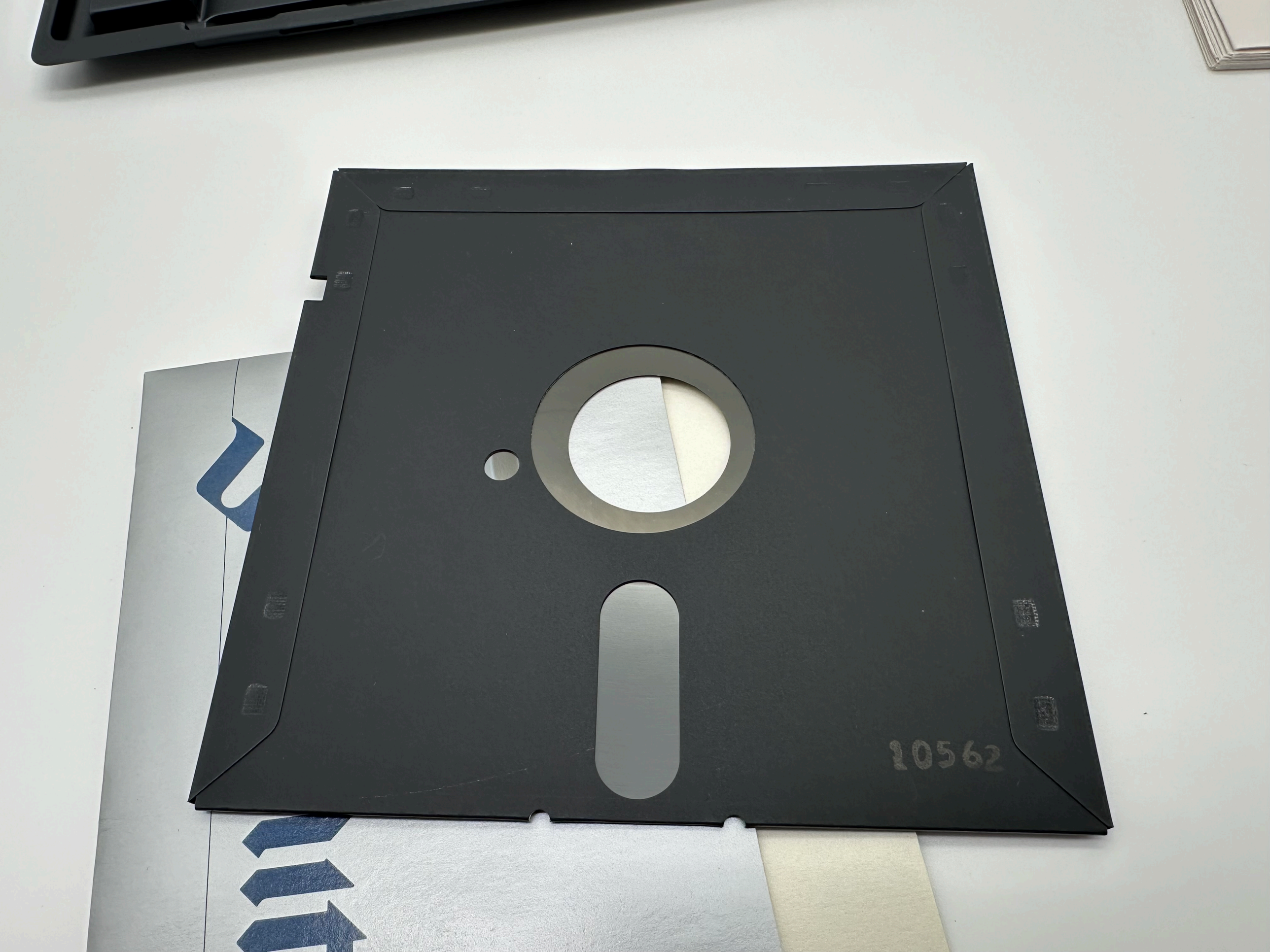
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